ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

EB-2022-0200, Decision and Order, p. 135

Question(s):

In Phase 1, the OEB denied Enbridge Gas's exemption request to change the MRPM metric to 2.0% of meters (from the current 0.5% metric).

In that decision, the OEB stated:

Enbridge Gas needs to improve its performance rather than seek to change the metric. It is imperative that customers have accurate bills to manage their expenses, assess their energy costs and manage their energy activities accordingly. Changing the metric to 2% would lock in the adverse performance levels that occurred in unusual circumstances. The OEB finds that there are no unusual circumstances persisting in 2023, beyond Enbridge Gas's control.

Please describe how Enbridge Gas has considered the OEB's decision in Phase 1, related to the MRPM exemption request, in its current proposal to exclude inaccessible meters from MRPM calculations.

Response:

Enbridge Gas has considered the Phase 1 Decision and is actively working towards meeting the target of 0.5% for the Meter Reading Performance Measure (MRPM). Since initially implementing the Company's 2022 MRPM Mitigation Plan, Enbridge Gas has invested over $7.5 million to improve meter reading performance. The MRPM results have significantly improved from 5.0% in 2021 to 1.3% for 2023 and currently the MRPM results are 1.0% YTD for 2024. The results are described at Phase 2 Exhibit 1, Tab 7, Schedule 1, paragraph 31. The Mitigation Plan can be found at Phase 2 Exhibit 1, Tab 7, Schedule 1, Attachment 4. /u /u

Enbridge Gas's commitment to all aspects of the mitigation plan has resulted in more accurate billing for customers, which is evident in the reduction in customer escalations in 2024. The number of billing related complaints received via the OEB related to /u

consecutive estimates is down 70% from 2023 year to date (YTD) and the number of general billing related complaints through Ombuds is down 37% from 2023 YTD. Overall, the complaints related to consecutive estimates are down 30% from 2023 YTD. /u

The Company's significant reduction in consecutive estimates, the reduction in billing and consecutive estimate related complaints and the overall improvement in the MRPM results continuing YTD, all demonstrate Enbridge Gas's commitment to improving its performance and ensuring customers have accurate bills. /u

The data on meter reading and customer behaviour that Enbridge Gas continues to collect clearly demonstrates that customer behaviour has fundamentally changed since the pandemic. The unusual circumstances that began during the pandemic are now the standard environment in which Enbridge Gas must operate to gain access and read meters. Please see Phase 2 Exhibit 1, Tab 7, Schedule 1, paragraph 13 and 14 for further information. The supporting data can be found at Phase 2 Exhibit 1, Tab 7, Schedule 1, Attachment 2. /u

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 7, Tab 1, Schedule 1, p. 6 and Attachment 2

Question(s):

Enbridge Gas is proposing that all meters with access issues caused by or within the control of the customer to address be excluded from the Meter Reading Performance Metric (MRPM) calculation for the purposes of the scorecard measure, starting January 2024 for the entirety of the IR term.

Enbridge Gas provided the number of consecutive estimated meters attributable to inaccessible meters and the MRPM calculation with and without inaccessible meters removed for 2022 and 2023 and the forecast for 2024.

Attachment 2 is reproduced below:

	Total number of consecutive estimate meters	**% of Target Achieved**	**Total number of inaccessible meters**
2022	1,906,081	4.10%	613,431
2023	614,305	1.31%	302,789
2024 (forecast)	502,664	1.06%	247,372

a) Please describe the approach taken to inform Enbridge Gas staff of any known difficult locations including whether this information is recorded in the customer information or other systems that can be accessed by meter readers.

b) Please confirm that Enbridge Gas would not include unusual circumstances outside of both the customer and Enbridge Gas's control (i.e., extreme weather, global pandemic, etc.) as part of the number of inaccessible meters for the purposes of calculating the MPRM metric.

c) Please provide the number of consecutive estimated meters attributable to inaccessible meters and the MRPM calculation with inaccessible meters removed from 2019 to 2021. Please discuss any trends in the data.

d) Please explain why Enbridge Gas is proposing to exclude inaccessible meters from its MRPM calculations when its number of consecutive estimate meters and number of inaccessible meters have decreased significantly from 2022 and are forecasted to continue to decrease, with the MRPM target improving since 2022

e) Please provide rationale for Enbridge Gas's proposal to exclude inaccessible meters from its MRPM calculations for the entire IR term (i.e., instead of requesting an exemption in each IR year, as applicable).

f) Please provide the last 10 years, for each year, quantities of inaccessible meters broken up by:

i. Customer caused versus non-customer caused
i. If sub-causes exist, provide with that resolution as well
ii. Rate Zone (EGD, Union South, Union North East, Union North West)
iii. Total meters

Please use the following table as an example:

Category		2015	…..	2024
Customer Caused	Total			
	Rate Zone			
Non-Customer Caused	Total			
	Rate Zone			
Total Meters	Total			
	Rate Zone			

g) Please provide the average meter read times for inaccessible meters in 2023 due to:

i. Customer reasons
ii. Non-customer reasons

Response:

a) Meter reading vendors, who read meters on behalf of Enbridge Gas, are able to extract a list of customers with 3+ months of consecutive estimates from Enbridge Gas's SAP Customer Information System. The meter reading vendor will prepare a list of addresses for the meter readers to target. If instructions to access the meter are available, meter readers can use their handheld device to access those instructions as described at Exhibit I.1.7-STAFF-3, part c).

b) Confirmed. Enbridge Gas would not include unusual circumstances for the purpose of calculating the MRPM. For example, extreme weather would cause the entire meter reading route to be cancelled and the consecutive estimate would not be categorized as an inaccessible meter.

c) Enbridge Gas did not track customer caused inaccessible meters as a separate category to consecutive estimates until 2022 when it became apparent that the meter reading climate had changed dramatically, not only as a result of the pandemic and a change in the meter reading vendor but also a change in customer behaviour. Please see Phase 2 Exhibit 1, Tab 7, Schedule 1, page 11, paragraph 14.

   Data for 2022 and 2023 is provided at Phase 2 Exhibit 1, Tab 7, Schedule 1, Attachment 2, page 1.

d) Enbridge Gas is proposing to exclude inaccessible meters from its MRPM calculations even though the number of meters being read has improved since 2021. Although the number of consecutive estimates continues to decline, the number of inaccessible meters accounts for a larger proportion of consecutive estimates overall. The proportional percentage of inaccessible meters has increased from 32% in 2022 to 49% in 2023 and currently sits at 60% in 2024 YTD. The efforts /u
   undertaken by Enbridge Gas through mitigation efforts to reduce consecutive estimates are showing diminishing returns due to the fundamental change in customer behaviour outside of Enbridge Gas's control. The python exponential /u
   smoothing forecast shown in Attachment 2 uses consecutive estimate data since 2022, current resourcing and weather conditions (favourable) to forecast MRPM. The forecast shows that despite favourable weather and resource conditions, the current mitigation efforts that allowed a significant improvement in MRPM, will not be sufficient to enable Enbridge Gas to meet the MRPM in the future. Enbridge Gas would therefore be forced into a position where it must take more drastic mitigation efforts such as disconnecting customers that are not providing the Company access to read the meter. Enbridge Gas's position is that removing inaccessible meters outside the Company's control is the best solution for the customer, the OEB and the Company.

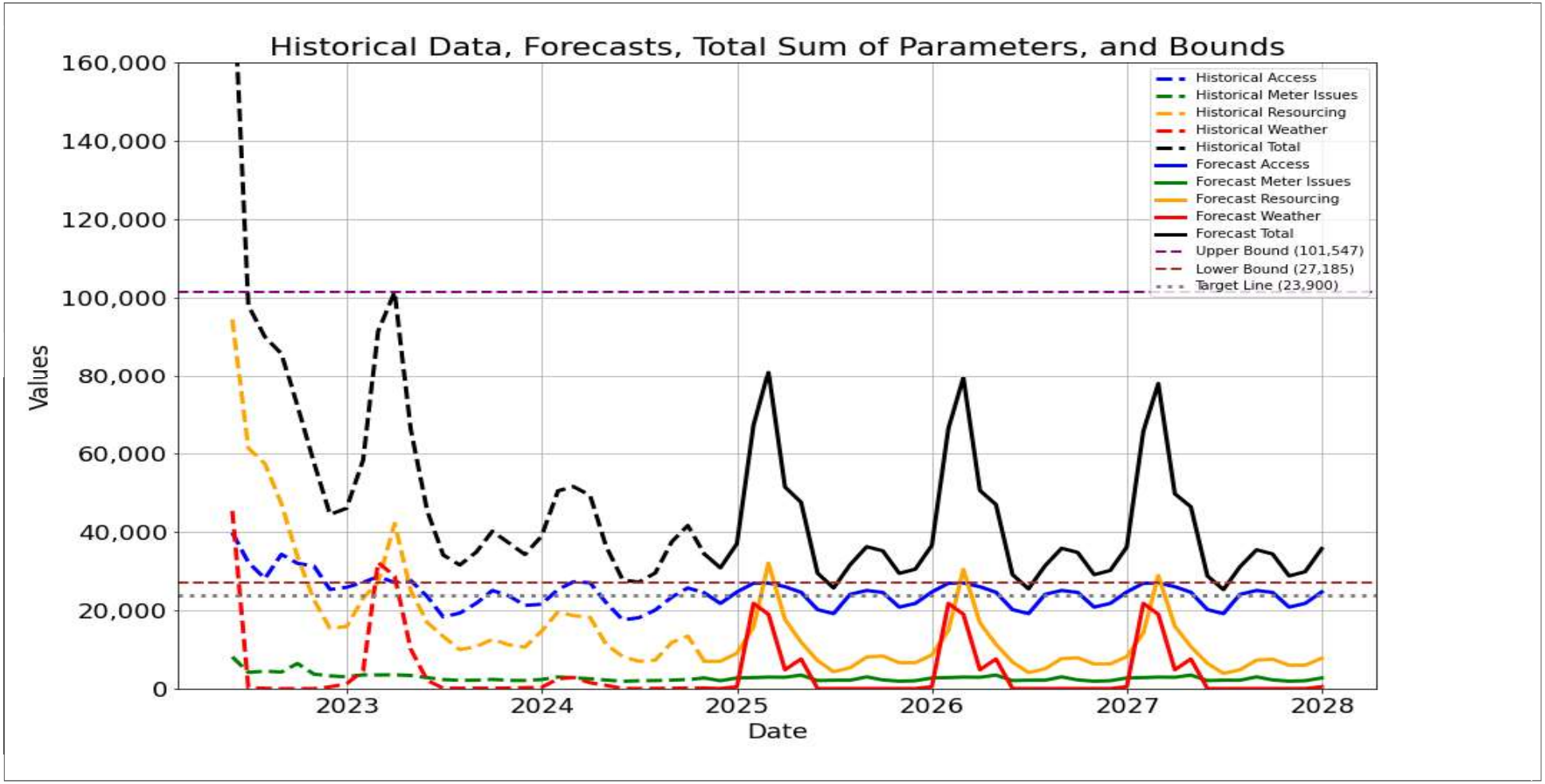
e) Enbridge Gas is requesting approval for the entire IR term as a result of customer behaviour that has fundamentally changed, impairing Enbridge Gas's ability to gain access to customers properties and read meters. Enbridge Gas expects this to be the standard environment in which Enbridge Gas must operate, as noted in response at Exhibit I.1.7-STAFF-1. Enbridge Gas does not expect these conditions to change over the IR term, as such, it is appropriate that the request is over the IR term rather than year by year or for any shorter term.

f) Please see Attachment 1 for data on inaccessible meters from 2022 to 2024 showing the split between:
    i. customer caused inaccessible meters and non-customer caused inaccessible meters; and
    ii. EGD rate zone and Union rate zones

    Data on customer caused inaccessible meters prior to 2022 is not available as noted at part c).

g) Enbridge Gas has interpreted the average meter read times in two ways:
    i. The average amount of time it takes a meter reader to physically read the meter.
        - This data is not available.
    ii. The average amount of time a customer is on the consecutive estimate listing.
        - Based on a June 2024 report, the average length of time a meter is on the consecutive estimate listing for customer caused reasons is 7 months, and for non-customer caused reasons is 6 months.

Results


Historical Data, Forecasts, Total Sum of Parameters, and Bounds
Historical Access
Historical Meter Issues
Historical Resourcing
Historical Weather
Historical Total
Forecast Access
Forecast Meter Issues
Forecast Resourcing
Forecast Weather
Forecast Total
Upper Bound (101,547)
Lower Bound (27,185)
Target Line (23,900)
Values
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
2023
2024
2025
2026
2027
2028
Date

Historical and Forecasted Values

ENBRIDGE
Life Takes Energy

Historical Values

Date	Access	Meter Issues	Resourcing	Weather	Total
2022-01	63,810	2,861	104,912	104,533	276,116
2022-02	73,794	4,751	203,115	40,937	322,597
2022-03	62,394	13,933	164,751	106,273	347,351
2022-04	90,593	7,529	149,847	21,306	269,275
2022-05	39,787	8,130	94,546	45,380	187,843
2022-06	32,265	4,161	61,386	266	98,078
2022-07	28,100	4,474	57,409	105	90,088
2022-08	34,287	4,263	47,194	23	85,767
2022-09	31,995	6,442	33,701	30	72,168
2022-10	31,261	3,712	22,652	29	57,654
2022-11	25,318	3,281	15,349	483	44,431
2022-12	25,876	3,042	15,881	1,261	46,060
2023-01	27,129	3,534	23,113	4,581	58,357
2023-02	28,613	3,509	27,172	32,201	91,495
2023-03	27,103	3,546	42,182	28,716	101,547
2023-04	27,638	3,380	25,110	10,140	66,268
2023-05	23,525	2,820	16,897	2,122	45,364
2023-06	18,317	2,326	13,351	119	34,113
2023-07	19,302	2,147	9,977	139	31,565
2023-08	21,818	2,169	10,757	129	34,873
2023-09	25,081	2,383	12,588	140	40,192
2023-10	23,693	2,127	11,201	158	37,179
2023-11	21,255	2,096	10,624	275	34,250
2023-12	21,556	2,349	14,666	332	38,903
2024-01	25,331	3,005	19,629	2,530	50,495
2024-02	27,280	2,791	18,636	2,868	51,575
2024-03	27,040	2,538	18,209	1,525	49,312
2024-04	21,960	2,214	11,271	863	36,308
2024-05	17,562	1,912	8,220	82	27,776
2024-06	18,109	2,028	7,005	43	27,185
2024-07	20,064	2,084	7,295	80	29,523
2024-08	23,361	2,192	11,836	120	37,509
2024-09	25,720	2,341	13,404	163	41,628
2024-10	24,445	2,742	6,999	176	34,362

Forecasted Values

Date	Access	Meter Issues	Resourcing	Weather	Total
2024-10-31	20,821	1,923	6,999	43	29,786
2024-11-30	21,762	2,040	6,999	43	30,844
2024-12-31	24,687	2,749	9,078	516	37,030
2025-01-31	26,917	2,833	15,703	21,774	67,227
2025-02-28	26,981	2,970	32,026	18,997	80,974
2025-03-31	26,027	2,926	17,672	4,835	51,460
2025-04-30	24,614	3,478	11,893	7,590	47,575
2025-05-31	20,181	2,084	7,165	43	29,473
2025-06-30	19,161	2,171	4,331	43	25,706
2025-07-31	24,075	2,167	5,360	43	31,645
2025-08-31	25,073	3,029	8,087	43	36,232
2025-09-30	24,571	2,244	8,333	43	35,191
2025-10-31	20,821	1,923	6,649	43	29,436
2025-11-30	21,762	2,040	6,649	43	30,494
2025-12-31	24,687	2,749	8,624	516	36,576
2026-01-31	26,917	2,833	14,917	21,774	66,441
2026-02-28	26,981	2,970	30,425	18,997	79,373
2026-03-31	26,027	2,926	16,788	4,835	50,576
2026-04-30	24,614	3,478	11,298	7,590	46,980
2026-05-31	20,181	2,084	6,807	43	29,115
2026-06-30	19,161	2,171	4,114	43	25,489
2026-07-31	24,075	2,167	5,092	43	31,377
2026-08-31	25,073	3,029	7,683	43	35,828
2026-09-30	24,571	2,244	7,917	43	34,775
2026-10-31	20,821	1,923	6,317	43	29,104
2026-11-30	21,762	2,040	6,317	43	30,162
2026-12-31	24,687	2,749	8,193	516	36,145
2027-01-31	26,917	2,833	14,172	21,774	65,696
2027-02-28	26,981	2,970	28,904	18,997	77,852
2027-03-31	26,027	2,926	15,949	4,835	49,737
2027-04-30	24,614	3,478	10,733	7,590	46,415
2027-05-31	20,181	2,084	6,466	43	28,774
2027-06-30	19,161	2,171	3,909	43	25,284
2027-07-31	24,075	2,167	4,837	43	31,122
2027-08-31	25,073	3,029	7,299	43	35,444
2027-09-30	24,571	2,244	7,521	43	34,379
2027-10-31	20,821	1,923	6,001	43	28,788
2027-11-30	21,762	2,040	6,001	43	29,846
2027-12-31	24,687	2,749	7,783	516	35,735

MRPM Calculations

MRPM values with all 4 parameters

Year	4 Plus Con Ests	Total Meter Count	MRPM %
2023	614,106	46,892,202	1.31
2024	453,547	47,419,539	0.96
2025	501,989	47,434,392	1.06
2026	495,365	48,194,700	1.03
2027	489,072	48,481,476	1.01

MRPM values with 3 parameters (without Access)

Year	4 Plus Con Ests	Total Meter Count	MRPM %
2023	329,076	46,892,202	0.70
2024	176,226	47,419,539	0.37
2025	217,119	47,434,392	0.46
2026	210,495	48,194,700	0.44
2027	204,202	48,481,476	0.42

ENBRIDGE GAS INC.

Answer to Interrogatory from
Vulnerable Energy Consumers Coalition (VECC)

Interrogatory

Reference:

P2 Exhibit 1, Tab 7, Schedule 1, Attachment 1 / EB-2022-0200, pg.130

Question(s):

Table 9
MRPM Actual Performance to Target (2019 to 2022)

Target	Actual	Actual	Actual	Actual
	2022	**2021**	**2020**	**2019**
0.5%	4.1%	5.0%	4.4%	0.7%

a) The above table was extracted from EGI's Phase 1 evidence and reproduced in the Board's decision in EB-2022-0200. Please update Table 5 to include 2023 actual results.

b) Please amend the table to show the results separate for the EGI and Union Rate zones.

c) Do each of the years shown in Table 9 include inaccessible meters?

d) What accounts for the significantly better actual performance in 2019?

e) Attachment 1 shows 2023 meter reading performance as 1.3%. What accounts for this significant improvement?

Response:

a) Enbridge Gas interprets the question to reference Table 9 and not Table 5. Please see Table 1 in response at part b). 2022 and 2023 actual MRPM results are provided at Phase 2 Exhibit 1, Tab 7, Schedule 1, Attachment 2, page 1.

b) Table 1 provides the MRPM results for the EGD rate zone and Union rate zones. Please note that the combined percentage is based on the total number of meters and is not an average of the two scores.

Table 1
MRPM Actual Performance (2019 to 2024(YTD)) /u

Line No.		Target	2024 (YTD)	2023	2022	2021	2020	2019
1	EGD Rate Zone	0.5%	0.78%	1.07%	2.67%	3.23%	2.15%	0.62%
2	Union Rate Zones		1.27%	1.68%	6.22%	7.63%	7.65%	0.78%
3	Total		0.97%	1.30%	4.10%	5.00%	4.40%	0.70%

c) Yes, Table 9 does include inaccessible meters for each year.

d) The MRPM results in 2019 are 0.7% compared to 4.4% and 5.0% in 2020 and 2021, respectively. Even though the results are better compared to 2020 and 2021, Enbridge Gas did not achieve the MRPM target of 0.5%. The challenges in 2019 were extreme weather and a meter reading vendor ending its contract with Enbridge Gas, as described at EB-2022-0200 Exhibit 1, Tab 7, Schedule 1, page 11, paragraph 23. Additionally, 2019 performance was not affected by the cumulative nature of the meter reading performance measurement's calculation, as described in further detail at Phase 2 Exhibit 1, Tab 7, Schedule 1, paragraph 22.

For 2020 and 2021, in addition to the challenges experienced in 2019, there were new challenges tied to the pandemic preventing Enbridge Gas from meeting the MRPM. This included public concerns about the safety of meter reading activities, closed businesses, increased customer sensitivities and access issues, as described at EB-2022-0200 Exhibit 1, Tab 7, Schedule 1, page 11, paragraph 24.

e) The significant improvements to the meter reading performance are directly related to the mitigation efforts undertaken by Enbridge Gas. These mitigation efforts are described at Phase 2 Exhibit 1, Tab 7, Schedule 1, page 13, paragraphs 31 to 44.

It's important to mention that these mitigation measures come at a cost. Between the marketing campaign runs, the number of calls received to input customer reads, the technology and process improvements, Enbridge Gas has invested over 7.5 million dollars since 2022. These investments have helped to reduce consecutive estimates and ultimately improve the MRPM but have not had a significant effect on issues with inaccessible meters. /u

The data collected continues to show that despite the mitigation efforts and significant investments made by Enbridge Gas, the unusual circumstances mentioned in Phase 1 are persisting and are outside of Enbridge Gas's control, making it impossible for the Company to achieve the MRPM target of 0.5%. As an example, Enbridge Gas invests over $500,000 per year to educate customers on being able to provide customer reads to assist with consecutive estimates. Despite a 21% increase in overall customer reads, only 3% of consecutive estimate customers targeted provide a customer read. This is also a temporary solution as it does not address the root cause of not being able to access and read the meter.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, p.3 and p. 12

Question(s):

Enbridge Gas has proposed cost recovery for low-carbon energy through a newly proposed Low-Carbon Voluntary Program (LCVP) for large volume sales service customers and through the cost of gas supply commodity purchases. Enbridge Gas expects to offer the LCVP on a voluntary basis to large volume sales service customers beginning January 1, 2027. Enbridge Gas plans to procure up to one percent of the equivalent forecast supply requirements as low-carbon energy for 2026 and increase target procurement by one percentage point annually until 2029, reaching four percent.

a) Please indicate the level of interest from large volume sales service customers to purchase low carbon energy and what are the expected volumes that these customers are likely to purchase as part of the LCVP.

b) What is the estimated percentage of low carbon energy volumes that will be purchased by large volume sales service customers in 2027, 2028 and 2029?

c) How does the energy content differ from the typical natural gas supplies versus the RNG? What is the hydrocarbon composition of the RNG?

d) How Enbridge Gas set the 1% target for 2026 to 4% in 2029 considering that current participation is less than 0.2% of total customers?

e) Of the current voluntary program, how much of the voluntary RNG gas consumption makes up of total gas consumption across the entire network for each of the past three years?

f) Is Enbridge Gas proposing a linear increase in voluntary program uptake with increased marketing spend? Please show the projections for voluntary uptake numbers (both customer count and consumption) and marketing spend between 2024-2029. Please show how those projections align with the proposed RNG limits for 2026 to 2029.

g) Are Ontario rate payers allowed to purchase gas from any marketer at this time? Why should rate payers provide additional funds for Enbridge Gas to compete against these other gas marketers? If a demand for RNG was so pronounced, would this not suggest that one of the freely competitive marketers be able to fulfill this market place?

Response:

a) Please see response at Exhibit I.4.2-SEC-32.

b) Enbridge Gas has not produced an LCVP demand forecast for 2027, 2028, and 2029. Please see response at Exhibit I.4.2-SEC-32.

c) To be injected into the gas pipeline system, renewable natural gas (RNG) must meet the gas quality specifications of the pipeline operator, and therefore the energy content of RNG is comparable to that of natural gas. As per Enbridge Gas's Gas Quality Specifications[1], the required gross heating value must be a minimum of 36 to a maximum of 41.3 megajoules per cubic meters (MJ/m^3). RNG injected into the Enbridge Gas system is composed primarily of methane, as Enbridge Gas's Gas Quality Specification also requires the removal of natural gasoline, butane, propane, and other hydrocarbons, except methane.

d) Enbridge Gas is proposing to procure up to one percent of gas supply as RNG beginning in 2026, increasing by one percent per year, reaching a target RNG procurement of up to four percent in 2029 and thereafter. The proposal includes up to one percent of supply as a blend into the gas supply commodity portfolio in 2026 for the benefit of all sales service customers, with a hybrid offering of the Low-Carbon Voluntary Program (LCVP) and a gas supply commodity blend in the subsequent years.

In Enbridge Gas's customer engagement findings, as provided at EB-2022-0200 Exhibit 1, Tab 6, Schedule 1, Attachment 1, page 119, residential customers ranked "minimizing impacts on the environment" as a top priority just behind affordability and the safety and reliability of delivering natural gas. Responses to the customer engagement survey at EB-2022-0200 Exhibit 1, Tab 6, Schedule 1, Attachment 1, pages 293 to 295 and 382 to 384, reported 54 percent of residential customers and 52 percent of business customers supported incurring additional costs to support RNG in the sales service portfolio. The results are consistent with a study conducted

[1] Enbridge Gas. Biogas Services Agreement. Exhibit C8-Gas Quality. https://www.enbridgegas.com/-/media/Extranet-Pages/Storage-and-transportation/Services/RNG-RSG-Producer-Services/Enbridge-Biogas-Services-Agreement-EGI-Legal-Feb-10-2022.pdf?rev=4ffe18ee1b46401a953fcc3407fd5fcb&hash=AD83E66541734CBB4838CB46532101F5

in 2018 provided at the Voluntary Renewable Natural Gas Application[2] where 46 percent of customers said they would be willing to pay $2 per month for RNG in the gas supply. This amount aligns with the 2026 target of one percent of the gas supply as RNG with a maximum bill impact of $2 per month for the average residential customer.

The maximum bill impact of $8 per month for the average residential customer in 2029 assumes no LCVP participation. As discussed in response at Exhibit I.4.2-SEC-32, Enbridge Gas expects participation in the LCVP from large volume customers beginning in 2027, limiting the potential bill impact on all other sales service customers in subsequent years.

e) RNG represented the following percentages of the total gas supply commodity portfolio for 2020/21, 2021/22 and 2022/23: 0.0%, 0.00019%, and 0.00046%, respectively.

f) No. Marketing of the LCVP will use existing channels including account management, customer meetings, website communication such as My Account and Enerline, and email communication.

g) Yes, Enbridge Gas customers have the option of a direct purchase (DP) arrangement to deliver their natural gas supply to Enbridge Gas, which could include RNG as arranged with their energy marketer or broker.

Unlike other jurisdictions such as British Columbia and Quebec, Ontario's large volume sales service customers do not have the option to purchase RNG to lower GHG emissions unless they enter into a DP arrangement. In addition, customers who are participants under Ontario's Emissions Performance Standard (EPS) and are not DP will have no means to procure and use RNG as an option to lower their reportable GHG emissions and associated compliance obligation.

Updated Response: /u

d) Enbridge Gas is proposing to procure up to 0.25 percent of gas supply as RNG beginning in 2026, increasing the percentage each year, reaching a target RNG procurement of up to two percent in 2029 and thereafter. The proposal includes up to 0.25 percent of supply as a blend into the gas supply commodity portfolio in 2026 for the benefit of all sales service customers, with a hybrid offering of the Lower-Carbon Voluntary Program (LCVP) and a gas supply commodity blend in the subsequent years.

[2] EB-2020-0066, Exhibit C, Tab 4, Schedule 1.

In Enbridge Gas's customer engagement findings, as provided at EB-2022-0200 Exhibit 1, Tab 6, Schedule 1, Attachment 1, page 119, residential customers ranked "minimizing impacts on the environment" as a top priority just behind affordability and the safety and reliability of delivering natural gas. Responses to the customer engagement survey at EB-2022-0200 Exhibit 1, Tab 6, Schedule 1, Attachment 1, pages 293 to 295 and 382 to 384, reported 54 percent of residential customers and 52 percent of business customers supported incurring additional costs to support RNG in the sales service portfolio. The results are consistent with a study conducted in 2018 provided at the Voluntary Renewable Natural Gas Application[3] where 46 percent of customers said they would be willing to pay $2 per month for RNG in the gas supply. This amount aligns with a target percentage of one percent of the gas supply as RNG with a maximum bill impact of $2 per month for the average residential customer.

[3] EB-2020-0066, Exhibit C, Tab 4, Schedule 1.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, p. 7

Question(s):

Enbridge Gas describes the two potential situations where it would stop procuring low carbon energy for a program year, which include a target percentage of low-carbon energy in the total gas supply portfolio, and a maximum bill impact threshold.

a) Please confirm that the target percentage of low-carbon energy in the gas supply portfolio would be calculated on an energy equivalent basis, not a volumetric basis.

b) Please confirm that Enbridge Gas is proposing that the maximum bill impact threshold is tied to the target percentage of low-carbon energy purchases, not the actual percentage of low-carbon energy purchases and provide Enbridge Gas's rationale for this approach. For example, if Enbridge Gas's target of low- carbon energy purchases is 4% of Enbridge Gas's planned gas supply commodity portfolio, but it only ends up purchasing a supply of low-carbon energy equivalent to 3% of the planned gas supply commodity portfolio, OEB staff's interpretation of Enbridge Gas's proposal is that Enbridge Gas would have the ability to spend up to a level such that the bill impact on residential customers of purchasing this volume is $8 per month, not $6 per month (paying a higher unit cost for the low-carbon energy purchases).

c) If confirmed, is there a unit cost threshold ($/m3 or potentially $/CO2e) at which Enbridge Gas would elect to cease further purchase of low-carbon energy supply?

Response:

a) Confirmed. Enbridge Gas will apply the target low-carbon percentage to the planned gas supply commodity portfolio which is prepared on an energy content basis (GJ).

b) Confirmed. Enbridge Gas is proposing that the maximum bill impact be tied to the target percentage of low-carbon energy (RNG) by program year. This approach provides the Company with flexibility and recognizes that the price of RNG is based on market factors. Tying the average residential bill impact to the actual RNG

percentage of planned gas supply commodity portfolio purchases places a cap on the price at which RNG can be procured.

Enbridge Gas proposes two maximum thresholds that will be considered during the procurement process: an annual target percentage of low-carbon energy (RNG) based on the program year and maximum residential bill impact of $2/month per target percentage.

The calculated weighted average net RNG price where the maximum of both thresholds is reached is $25.58/GJ. The net RNG price is incremental to the gas supply commodity charged to customers excluding the low-carbon energy commodity costs and the FCC benefit. The actual market price of RNG is influenced by many factors as described at Exhibit I.4.2-ED-40. If the weighted average net price of RNG procured is less than $25.58/GJ, Enbridge Gas commits to not exceeding the maximum target percentage. If the weighted average net price of RNG procured is greater than $25.58/GJ, Enbridge Gas commits to not exceeding the maximum residential bill impact.

Table 1 provides the calculation of the $25.58/GJ net RNG price where the maximum of both thresholds is reached.

Table 1
Net RNG Price of Maximum Target Percentage and Residential Bill Impact

Line No.	Particulars	2026	2027	2028	2029
		(a)	(b)	(c)	(d)
1	Maximum residential impact per month ($/month)	2.00	4.00	6.00	8.00
2	Maximum residential impact per year ($/year) (line 1 x 12)	24.00	48.00	72.00	96.00
3	Average residential annual consumption (m^3/year) (1)	2,400	2,400	2,400	2,400
4	Unit rate impact ($/$m^3$) (line 2 / line 3)	0.01	0.02	0.03	0.04
5	Maximum target percentage	1%	2%	3%	4%
6	Net RNG price ($/$m^3$) (line 4 / line 5)	1.00	1.00	1.00	1.00
7	2024 heat value of natural gas (2)	39.09	39.09	39.09	39.09
8	Net RNG price ($/GJ) (line 6 / line 7 x 1000)	25.58	25.58	25.58	25.58

Note:

(1) The average annual consumption is 2,400 m^3 and 2,200 m^3 for residential customers in the EGD rate zone and Union rate zones, respectively. Using the highest average consumption in the calculation of bill impact ensures that the average residential customers in all rates zones are not impacted above the maximum bill impact proposed.

(2) Enbridge Gas South heat value of natural gas effective July 1, 2024. The heat value of natural gas can vary and will impact the net RNG price in $/GJ if different than the heat value used in this calculation.

c) No. Enbridge Gas will not have an RNG price threshold above which it will no longer consider RNG opportunities. The actual market price of RNG is influenced by many factors as described at Exhibit I.4.2-ED-40. Enbridge Gas will use the gas supply planning principles throughout the RNG procurement process. As outlined at Phase 2 Exhibit 4, Tab 2, Schedule 7, page 14, Section 2.1, the proposal to procure low-carbon energy as part of the gas supply commodity portfolio is aligned with each of the three guiding principles: cost-effectiveness, reliability and security of supply, and public policy. Please see response at Exhibit I.4.2-CBA-1 for the proposed procurement process.

Updated Response: /u

a) Confirmed. Enbridge Gas will apply the target lower-carbon percentage to the planned gas supply commodity portfolio which is prepared on an energy content basis (GJ).

b) Confirmed. Enbridge Gas is proposing that the maximum bill impact be tied to the target percentage of lower-carbon energy (RNG) by program year. This approach provides the Company with flexibility and recognizes that the price of RNG is based on market factors. Tying the average residential bill impact to the actual RNG percentage of planned gas supply commodity portfolio purchases places a cap on the price at which RNG can be procured.

   Enbridge Gas proposes two maximum thresholds that will be considered during the procurement process: an annual target percentage of lower-carbon energy (RNG) based on the program year and maximum residential bill impact of $2/month per target percentage.

   The calculated weighted average net RNG price where the maximum of both thresholds is reached is $25.58/GJ. The net RNG price is incremental to the gas supply commodity charged to customers excluding the lower-carbon energy commodity costs and the FCC benefit. The actual market price of RNG is influenced by many factors as described at Exhibit I.4.2-ED-40. If the weighted average net price of RNG procured is less than $25.58/GJ, Enbridge Gas commits to not exceeding the maximum target percentage. If the weighted average net price of RNG procured is greater than $25.58/GJ, Enbridge Gas commits to not exceeding the maximum residential bill impact.

   Table 1 provides the calculation of the $25.58/GJ net RNG price where the maximum of both thresholds is reached.

Table 1
Net RNG Price of Maximum Target Percentage and Residential Bill Impact

Line No.	Particulars	2026	2027	2028	2029
		(a)	(b)	(c)	(d)
1	Maximum residential impact per month ($/month)	0.50	1.50	2.50	4.00
2	Maximum residential impact per year ($/year) (line 1 x 12)	6.00	18.00	30.00	48.00
3	Average residential annual consumption (m^3/year) (1)	2,400	2,400	2,400	2,400
4	Unit rate impact ($/$m^3$) (line 2 / line 3)	0.0025	0.0075	0.0125	0.0200
5	Maximum target percentage	0.25%	0.75%	1.25%	2.00%
6	Net RNG price ($/$m^3$) (line 4 / line 5)	1.00	1.00	1.00	1.00
7	2024 heat value of natural gas (2)	39.09	39.09	39.09	39.09
8	Net RNG price ($/GJ) (line 6 / line 7 x 1000)	25.58	25.58	25.58	25.58

Note:

(1) The average annual consumption is 2,400 m^3 and 2,200 m^3 for residential customers in the EGD rate zone and Union rate zones, respectively. Using the highest average consumption in the calculation of bill impact ensures that the average residential customers in all rates zones are not impacted above the maximum bill impact proposed.

(2) Enbridge Gas South heat value of natural gas effective July 1, 2024. The heat value of natural gas can vary and will impact the net RNG price in $/GJ if different than the heat value used in this calculation.

c) No. Enbridge Gas will not have an RNG price threshold above which it will no longer consider RNG opportunities. The actual market price of RNG is influenced by many factors as described at Exhibit I.4.2-ED-40. Enbridge Gas will use the gas supply planning principles throughout the RNG procurement process. As outlined at Phase 2 Exhibit 4, Tab 2, Schedule 7, page 14, Section 2.1, the proposal to procure lower-carbon energy as part of the gas supply commodity portfolio is aligned with each of the three guiding principles: cost-effectiveness, reliability and security of supply, and public policy. Please see response at Exhibit I.4.2-CBA-1 for the proposed procurement process.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, Attachment 1

Question(s):

Enbridge Gas provided letters of support for the LVCP.

With all the letters of support provided, why does Enbridge Gas need to consider costs going to the general pool? The Federation of Rental-housing Providers of Ontario would represent nearly 10% of Enbridge Gas customers and a signed commitment to the program should allow Enbridge Gas to achieve its 1-4% targets without requiring the pool of Ontario rate payers to see any increased costs, both for RNG and for marketing.

Response:

The letters of support filed at Phase 2 Exhibit 4, Tab 2, Schedule 7, Attachment 1 indicate support for the Low-Carbon Voluntary Program (LCVP) which would give customers an RNG supply option that they do not have through the utility sales service today. The letters of support were not intended to be a commitment by the parties. As a result of the letters of support, Enbridge Gas expects strong participation in the LCVP from large volume sales service customers, however, the demand forecast is difficult to establish as discussed in response at Exhibit I.4.2-SEC-32.

As stated in response at Exhibit I.4.2-ED-40, two major factors that can impact the price of RNG are producer cost and market dynamics. Producers will develop the most economical projects first and may seek longer offtake agreements. Also, demand in jurisdictions where there are mandates and supporting programs in place will be the first to secure RNG supply. Without approval for an RNG program beyond the current voluntary RNG program, Enbridge Gas will be unable compete in the RNG market as the more economical projects are being developed and supply is being contracted for using longer-term offtake agreements. To compete for a larger volume of supply with long-term contracts, Enbridge Gas requires cost recovery certainty for volumes not elected by LCVP eligible customers.

As there will be variability between the RNG procured by Enbridge Gas on long-term contracts and the annual LCVP participation in the program on a long-term basis, cost recovery certainty is obtained by including RNG costs not recovered through the LCVP in gas supply commodity purchases. Additionally, small volume general service customers have demonstrated interest for RNG in customer engagement results and recovery through gas supply commodity purchases is a means to provide RNG to a larger group of small volume customers without the administrative burden that would accompany a specific program for the 3.8 million customers not eligible for the LCVP as proposed.

To ensure the gas supply commodity recovery element limits the cost for all customers to a maximum amount, Enbridge Gas is proposing a maximum bill impact of $2 per month for the average residential customer in 2026, increasing to $8 per month in 2029 and thereafter.

Updated Response: /u

The letters of support filed at Phase 2 Exhibit 4, Tab 2, Schedule 7, Attachment 1 indicate support for the Lower-Carbon Voluntary Program (LCVP) which would give customers an RNG supply option that they do not have through the utility sales service today. The letters of support were not intended to be a commitment by the parties. As a result of the letters of support, Enbridge Gas expects strong participation in the LCVP from large volume sales service customers, however, the demand forecast is difficult to establish as discussed in response at Exhibit I.4.2-SEC-32.

As stated in the response at Exhibit I.4.2-ED-40, two major factors that can impact the price of RNG are producer cost and market dynamics. Producers will develop the most economical projects first and may seek longer offtake agreements. Also, demand in jurisdictions where there are mandates and supporting programs in place will be the first to secure RNG supply. Without approval for an RNG program beyond the current voluntary RNG program, Enbridge Gas will be unable to compete in the RNG market as the more economical projects are being developed and supply is being contracted for using longer-term offtake agreements. To compete for a larger volume of supply with long-term contracts, Enbridge Gas requires cost recovery certainty for volumes not elected by LCVP eligible customers.

As there will be variability between the RNG procured by Enbridge Gas on long-term contracts and the annual LCVP participation in the program on a long-term basis, cost recovery certainty is obtained by including RNG costs not recovered through the LCVP in gas supply commodity purchases. Additionally, small volume general service customers have demonstrated interest for RNG in customer engagement results and recovery through gas supply commodity purchases is a means to provide RNG to a larger group of small volume customers without the administrative burden that would

accompany a specific program for the 3.8 million customers not eligible for the LCVP as proposed.

To ensure the gas supply commodity recovery element limits the cost for all customers to a maximum amount, Enbridge Gas is proposing a maximum bill impact of 50 cents per month for the average residential customer in 2026, increasing to $4 per month in 2029 and thereafter (subject to the OEB approving otherwise).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, pp. 15-16, 26-27

Question(s):

Enbridge Gas notes that its proposal to procure low-carbon energy is a cost-effective means to reduce emissions, and can contribute to meeting both Ontario's and Canada's greenhouse gas emissions targets. Enbridge Gas estimates that its low-carbon energy proposal would reduce emissions by over 1.06 Mt of CO2 by 2029. Enbridge Gas notes that FortisBC imports 18% of its RNG supply from Ontario, and that Enbridge Gas also has the ability to purchase RNG produced outside of Ontario.

a) Please provide the supporting calculation for the estimated 1.06 Mt emissions reduction.

b) Please confirm that this calculation assumes that RNG is completely free of CO2e emissions and does not consider additionality of emissions reductions or life-cycle emissions (including avoided methane emissions). If not confirmed, please provide Enbridge Gas's assumptions.

c) Please estimate the unit cost of CO2e emissions reductions through the LCVP program, stating any assumptions necessary for this calculation.

d) Please confirm that interprovincial transfers of RNG ownership (e.g., whether Fortis BC or Enbridge Gas had ownership rights to a given source of RNG supply) would not have an impact on Canada's overall calculated greenhouse gas emissions and progress towards its emissions targets but would impact Ontario's calculated emissions and progress toward its emissions targets. If not confirmed, please provide additional details.

Response:

a) Please see Table 1 for the calculations of the estimated emission reductions from RNG by 2029. For the purpose of this response, Enbridge Gas has updated the estimated emission reductions from 1.06 Mt to 1.04 Mt to reflect an update for the most up to date natural gas emission factor and heating value. As natural gas

heating values can fluctuate (for example, in 2023, monthly heating values ranged from 38.50 GJ/10^3m^3 to 39.30 GJ/10^3m^3), this fluctuation can lead to a difference of approximately 2.5 percent.

Table 1
Calculation of Estimated Emissions Reduction from RNG by 2029

Line No.	Particulars	
1	Total energy requirement per year (GJ/yr)	527,350,000
2	Low-carbon energy in 2029 (%)	4%
3	Total low-carbon energy per year (GJ/yr)	21,094,000
4	Volume of natural gas per year (10^3m^3/yr) (line 3 / 39.09 GJ/10^3m^3) (1)	539,637
5	Emissions Factor (tCO2/m^3) (2)	0.001921
6	GHG Emissions Reduced ($MtCO_2$/yr) (line 4 / line 5 / 1000)	1.04

Notes:
(1) Based on Enbridge Gas South annual heating value of 39.09 GJ/10^3m^3, effective July 1, 2024.
(2) Environment and Climate Change Canada. (2024 May). 2024 National Inventory Report 1990-2022: Greenhouse Gas Sources and Sinks in Canada. Part 2., Table A6.1-1 CO2 Emission Factors for Marketable Natural Gas. https://publications.gc.ca/collections/collection_2024/eccc/En81-4-2022-2-eng.pdf

b) Not confirmed. Enbridge Gas calculates GHG emissions and GHG emission reductions based on the end-use combustion of fuels; however, the Company does not assume that RNG is completely free of CO_2e emissions. Because CO_2 emissions from biomass released to the atmosphere are offset by biomass growth, RNG is recognized as being free of net carbon dioxide emissions.[1] Therefore, each cubic metre of RNG displacing a cubic metre of natural gas will avoid the associated amount of carbon dioxide released to the environment from natural gas combustion. The combustion of RNG also results in a small amount of methane (CH_4) and nitrous oxide (N_2O) emissions being produced. When converted to CO_2e, the end use combustion emission factor for RNG is 11.5 gCO2e/m3 of RNG, not zero as suggested in the question. As such, the emission reduction calculation in part a) only considers the CO_2 emissions abated by displacing natural gas.

Enbridge Gas confirms that the calculations in part a) are not based on lifecycle GHG emissions or carbon intensity values.

[1] Environment and Climate Change Canada. 2023. Technical Guidance on Reporting Greenhouse Gas Emissions, 4.2.7 (i) CO2 Emissions from Combustion of Biomass.

c) Please see the response at Exhibit I.4.2-ED-48, part a).

d) The entity purchasing the RNG would own the rights to the supply of RNG and the associated GHG emission reductions, which would be reflected in the GHG emission reporting in the province where the RNG is combusted, therefore also contributing to reducing Canada's reported GHG emissions and supporting achievement of Canada's GHG targets.

Updated Response: /u

a) Please see Table 1 for the calculations of the estimated emission reductions from RNG by 2029. For the purpose of this response, Enbridge Gas has updated the estimated emission reductions from 1.06 Mt to 1.04 Mt to reflect an update for the most up to date natural gas emission factor and heating value. As natural gas heating values can fluctuate (for example, in 2023, monthly heating values ranged from 38.50 GJ/10^3m^3 to 39.30 GJ/10^3m^3), this fluctuation can lead to a difference of approximately 2.5 percent.

Table 1
Calculation of Estimated Emissions Reduction from RNG by 2029

Line No.	Particulars	
1	Total energy requirement per year (GJ/yr)	527,350,000
2	Low-carbon energy in 2029 (%)	2%
3	Total low-carbon energy per year (GJ/yr)	10,547,000
4	Volume of natural gas per year (10^3m^3/yr) (line 3 / 39.09 GJ/10^3m^3) (1)	269,813
5	Emissions Factor (tCO2/m^3) (2)	0.001921
6	GHG Emissions Reduced ($MtCO_2$/yr) (line 4 / line 5 / 1000)	0.52

Notes:
(1) Based on Enbridge Gas South annual heating value of 39.09 GJ/10^3m^3, effective July 1, 2024.
(2) Environment and Climate Change Canada. (2024 May). 2024 National Inventory Report 1990-2022: Greenhouse Gas Sources and Sinks in Canada. Part 2., Table A6.1-1 CO2 Emission Factors for Marketable Natural Gas. https://publications.gc.ca/collections/collection_2024/eccc/En81-4-2022-2-eng.pdf

ENBRIDGE GAS INC.

Answer to Interrogatory from
Canadian Biogas Association (CBA)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, page 23, paragraph 58

Preamble:

Enbridge Gas is aware of multiple RNG projects in the planning and construction phase as well as projects in operation. Please see Attachment 3 for supporting documentation from potential RNG suppliers and impacted stakeholders. These documents demonstrate the further development of RNG projects and supply, interest in participating in a competitive bid process should this proposal receive approval, as well as some of the opportunity that RNG provides in both economic development and waste management. Specifically, at page 1 of Attachment 3, one producer states that RNG "presents a remarkable opportunity for rural economic development by promoting the growth of local biogas and agricultural waste-to-energy projects. The development of RNG infrastructure and production facilities can create jobs in rural areas, providing new economic opportunities while also contributing to the diversification of rural economies" Others on page 4, state that Enbridge Gas's RNG procurement proposal "amplifies market potential for [their] RNG production". Initial production indications from this group of suppliers point to supply potential of greater than 39 PJ/year.

Question(s):

a) Please discuss the impact that the creation of demand in Ontario in the amount of up to 4% of EGI's total gas supply portfolio will have on the development of RNG projects in Ontario, if any.

b) Please confirm that most, if not all, RNG projects involve developing RNG out of the waste created from other primary products (i.e. the growing of food and the storage of waste) as opposed to being projects developed with the primary purpose of creating RNG.

Response:

a) Approval of the Enbridge Gas low-carbon energy proposal would create demand of up to 21.1 PJ of RNG by 2029. This demand for RNG by Enbridge Gas in Ontario

would support the development of RNG projects that may not otherwise be developed. Please see response at Exhibit I.4.2-ED-49, part e) for the benefits of developing RNG projects in Ontario. In addition, Ontario RNG producers have indicated their support for the proposal and the importance of Enbridge Gas entering the RNG procurement market in a more meaningful way. Please see response at Exhibit TFG/M-7, part b).

b) Yes, most RNG projects involve developing RNG from waste created from other primary products.

Updated Response: /u

a) Approval of the Enbridge Gas lower-carbon energy proposal would create demand of up to 10.5 PJ of RNG by 2029. This demand for RNG by Enbridge Gas in Ontario would support the development of RNG projects that may not otherwise be developed. Please see response at Exhibit I.4.2-ED-49, part e) for the benefits of developing RNG projects in Ontario. In addition, Ontario RNG producers have indicated their support for the proposal and the importance of Enbridge Gas entering the RNG procurement market in a more meaningful way. Please see response at Exhibit I.4.2-TFG/M-7, part b).

ENBRIDGE GAS INC.

Answer to Interrogatory from
Canadian Biogas Association (CBA)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, Attachment 2 pages 45-62

Preamble:

The North American Renewable Natural Gas Market Evaluation provided to EGI by Anew describes several RNG programs and program proposals in Canada and the USA.

Question(s):

Relative to the proposed 4% total annual RNG procurement and maximum $8 per month bill impact proposed by EGI, what would be the equivalent annual procurement and monthly bill impact were EGI to replicate the most “aggressive” RNG procurement program of those described in the Anew evaluation?

Response:

The most “aggressive” RNG procurement program described in Appendix A of the Anew Report appears to be the provincial mandate of FortisBC where the CleanBC plan calls for a minimum of 15% of natural gas be provided from renewable sources by 2030.[1]

Enbridge Gas notes that the Fortis BC mandate is a minimum percentage where Enbridge Gas’s low-carbon energy program is proposed with maximum target percentages.

Applying a 15% target percentage to the planned gas supply commodity portfolio of 527,350 TJ[2] would result in total RNG procurement of 79.1 TJ. A 15% maximum target percentage of low-carbon energy would equate to a maximum monthly residential bill impact of $30 in line with Enbridge Gas’s low-carbon energy program design where each target percentage of low-carbon energy is limited to a maximum residential bill impact of $2/month.

[1] Phase 2 Exhibit 4, Tab 2, Schedule 7, Attachment 2, p. 55.
[2] Phase 2 Exhibit 4, Tab 2, Schedule 1, Attachment 1, p. 3, line 8.

Updated Response: /u

The most “aggressive” RNG procurement program described in Appendix A of the Anew Report appears to be the provincial mandate of FortisBC where the CleanBC plan calls for a minimum of 15% of natural gas be provided from renewable sources by 2030.[3]

Enbridge Gas notes that the Fortis BC mandate is a minimum percentage where Enbridge Gas’s lower-carbon energy program is proposed with maximum target percentages.

Applying a 15% target percentage to the planned gas supply commodity portfolio of 527,350 TJ[4] would result in total RNG procurement of 79,103 TJ. A 15% maximum target percentage of lower-carbon energy would equate to a maximum monthly residential bill impact of $30 in line with Enbridge Gas’s lower-carbon energy program design where the maximum bill impact for the average residential customer is limited to $2/month per target percentage of RNG.

[3] Phase 2 Exhibit 4, Tab 2, Schedule 7, Attachment 2, p. 55.
[4] Phase 2 Exhibit 4, Tab 2, Schedule 1, Attachment 1, p. 3, line 8.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Consumers Council of Canada (CCC)

Interrogatory

Reference:

Ex. 4/T2/S7

Question(s):

a) (Page 3) Using the most up-to-date QRAM bills for a typical residential customer, please provide the annual residential bill impact (in percentage) on a total bill basis of a $2/month increase and a $8/month increase.

b) (Pages 7-8) Enbridge Gas stated, “the maximum bill impact will be incremental to the commodity costs charged to customers excluding the low-carbon energy commodity costs. As the FCC increases…the price differential between conventional natural gas and low-carbon energy will narrow.” Please further explain how the maximum bill impact will be calculated. More specifically, is Enbridge Gas including carbon charge differentials between RNG and conventional natural gas as part of the calculation? Please provide an illustrative calculation that highlights how Enbridge Gas will determine that it has reached the maximum bill impact on a forecast basis and should stop procuring RNG. If possible, please provide one illustrative example that excludes any LCVP participation and one example that includes LCVP participation.

c) If available, please provide a high-level estimate of the RNG procured that will be funded through LCVP participation (e.g., 10%, 50%, etc.) at each target percentage of RNG in the gas supply commodity portfolio (i.e., 1%-4%).

Response:

a) Please see Table 1 for the annual residential bill impact percentage relative to April 2024 QRAM for the low-carbon energy proposal maximum residential impact of $2/month and $8/month, respectively.

Table 1
Maximum Residential Bill Impacts from the Low-Carbon Energy Proposal

Line No.	Rate Zone	April 2024 QRAM Total Bill ($) (1)	Bill Impact (%) $2 per Month Increase	Bill Impact (%) $8 per Month Increase
		(a)	(b)	(c)
1	EGD	1,203.66	2.0%	8.0%
2	Union South	1,024.29	2.3%	9.4%
3	Union North East	1,300.82	1.8%	7.4%
4	Union North West	1,165.20	2.1%	8.2%

Note:
(1) Total Sales Service Total Bill including Cost Adjustments per EB-2024-0093, Exhibit A, Tab 3, Schedule 1.

b) Enbridge Gas proposes to calculate the maximum bill impact for a residential customer by considering the impact to the gas supply commodity component of the customer's bill net of the benefit to the Federal Carbon Charge (FCC) component of the customer's bill.

The gas supply commodity impact will be determined as the increase in the reference price due to the addition of RNG purchases[1]. The increase will be assessed as the premium of RNG relative to the reference price excluding the RNG purchases. The RNG purchases will replace what would have been gas supply purchases at Dawn in the calculation of the reference price. Enbridge Gas proposes to use the April QRAM of the year prior to the effective date of the charges to determine the maximum average residential bill impact on a forecast basis. After the increase to the reference price has been determined, Enbridge Gas will apply the increase in cents/m^3 to the average annual residential consumption of 2,400 m^3 to determine the gas supply commodity bill impact.

The FCC benefit will be determined as the FCC unit rate for the applicable year multiplied by the actual RNG purchases of the planned supply purchases applied to the average annual residential consumption of 2,400 m^3.

[1] As the gas supply plan will not be updated for reference price purposes during the IRM term, the actual increase in gas supply commodity costs will flow and impact customers' bills through the Purchase Gas Variance Account.

Enbridge Gas recognizes the uncertainty regarding long-term future of the FCC and will monitor the political developments such that if the FCC benefit will no longer be realized by customers that Enbridge Gas maintains the maximum residential bill impact threshold proposed.

Attachment 1 provides an illustrative calculation of the average residential bill impact of RNG with no LCVP participation and including LCVP participation.

c) Please see response at Exhibit I.4.2-SEC-32.

Updated Response: /u

a) Please see Table 1 for the annual residential bill impact percentage relative to April 2024 QRAM for the lower-carbon energy proposal maximum residential impact of $0.50/month and $4/month, respectively.

Table 1
Maximum Residential Bill Impacts from the Lower-Carbon Energy Proposal

Line No.	Rate Zone	April 2024 QRAM Total Bill ($) (1)	Bill Impact (%) $0.50 per Month Increase	Bill Impact (%) $4 per Month Increase
		(a)	(b)	(c)
1	EGD	1,203.66	0.5%	4.0%
2	Union South	1,024.29	0.6%	4.7%
3	Union North East	1,300.82	0.5%	3.7%
4	Union North West	1,165.20	0.5%	4.1%

Note:
(1) Total Sales Service Total Bill including Cost Adjustments per EB-2024-0093, Exhibit A, Tab 3, Schedule 1.

Illustrative Calculation of the Average Residential Bill Impact of RNG

Line No.		No LCVP Participation	Including 60% LCVP Participation
		(a)	(b)
	Gas Supply Commodity		
	Reference Price Impact		
1	Total supply and transportation costs, excluding RNG ($000) (1)	1,924,012	1,924,012
2	Actual RNG procured, excluding LCVP planned supply (TJ) (2)	10,545	4,218
3	Add: RNG cost @ $30/GJ (line 2 x $30/GJ)	316,338	126,535
4	Less: Dawn supplies @ $5.268/GJ (3) (line 2 x $5.268/GJ)	(55,549)	(22,220)
5	Total supply and transportation costs, including RNG premium ($000) (lines 1 + 3 + 4)	2,184,801	2,028,328
6	Planned supply purchases (TJ) (1)	527,231	527,231
7	Reference Price, including RNG ($/GJ) (line 5 / line 6)	4.144	3.847
8	Reference Price, excluding RNG ($/GJ) (line 1 / line 6)	3.649	3.649
9	Gas supply commodity impact of RNG ($/GJ)	0.495	0.198
10	2024 heat value of natural gas (4)	39.09	39.09
11	Gas supply commodity impact of RNG (cents/m³) (line 9 x HV / 10)	1.9335	0.7734
12	Average residential annual consumption (m³/year) (5)	2,400	2,400
13	Gas supply commodity bill impact (line 11 x line 12 / 100)	46.41	18.56
	Federal Carbon Charge		
14	2026 FCC unit rate (cents/m³) (6)	20.9700	20.9700
15	Actual percentage of planned supply purchases as RNG (7)	2.00%	0.8%
16	FCC impact benefit of RNG (cents/m³)	(0.4194)	(0.1678)
17	Average residential annual consumption (m³/year) (1)	2,400	2,400
18	Federal Carbon Charge bill impact benefit (line 16 x line 17 / 100)	(10.07)	(4.03)
	Bill Impact		
19	Annual average residential bill impact of RNG ($/year) (line 13 + line 18)	36.34	14.54
20	Monthly average residental bill impact of RNG ($/month) (line 19 / 12)	3.03	1.21

Notes:

(1) As provided in the Weighted Average Reference Price calculation of the prior year April QRAM to determine the maximum bill impact on a forecast basis. For this illustrative calculation, the July 2024 QRAM Weighted Average Reference Price was used, EB-2024-0166, Schedule C, Tab 1, Schedule 6.

(2) For purposes of this illustrative calculation, LCVP planned supply assumed to be 60% of all RNG supplies procured. The impact to residential customers is the actual RNG procured that is not planned as LCVP supply or 40% of 10,545 TJ (or 4,218 TJ).

(3) RNG supply purchases at the prior year April QRAM Dawn average supply price. For this illustrative calculation, the April 2022 QRAM was used, EB-2022-0200, Exhibit 4, Tab 2, Schedule 2, Attachment 3, line 2.

(4) Enbridge South heat value of natural gas effective April 1, 2024.

(5) The average annual consumption is 2,400 m³ and 2,200 m³ for residential customers in the EGD rate zone and Union rate zones, respectively. Using the highest average consumption in the calculation of bill impact ensures that the average residential customers in all rates zones are not impacted above the maximum bill impact proposed.

(6) 2026 Federal Carbon Charge Rates for Marketable Natural Gas of $110/t$CO_2$e converted to cents/m³.

(7) Calculated as actual RNG supplies procured divided by planned supply purchases.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, p. 3

Preamble:

Enbridge states:

> "Enbridge Gas proposes a maximum impact on the average residential customer of $2 per month per target percentage of RNG as forecast at the time of procurement, to a maximum of $8 per target percentage of RNG procurement in 2029 from the low-carbon energy program."

Question(s):

a) Is there a typo in the above quote? If not, please explain.

b) If the maximums are met, what is the annual forecast cost expected to be? Please make and state assumptions as necessary.

c) Will Enbridge be procuring RNG for non-residential customers? If yes, how will the budgets and amounts be determined for those customers?

d) Please provide table showing the total RNG volumes and cost per customer class in each year between now and 2029 if the maximum RNG purchases are achieved. Please make and state assumptions as necessary (e.g. cost of RNG).

Response:

a) Yes. The sentence should read "Enbridge Gas proposes a maximum impact on the average residential customer of $2 per month per target percentage of RNG as forecast at the time of procurement, to a maximum of $8 per month in 2029 from the low-carbon energy program."

b) Please see response at Exhibit I.4.2-PP-46, Table 1, lines 3 and 4. The response provides an estimate of the cost of RNG supplies assuming a weighted average RNG unit rate of $15.98/GJ as well as $30.00/GJ.

c) Yes, Enbridge Gas will procure RNG for non-residential customers. As part of Enbridge Gas's proposal for the Low-Carbon Voluntary Program (LCVP), the Company will procure RNG for non-residential general service and contract sales service customers. Additionally, Enbridge Gas proposes any amounts of RNG procured and not contracted for as part of the LCVP will be included with the cost of gas supply commodity purchases for both residential and non-residential sales service customers.

   Voluntary participants in the LCVP will be charged the associated premium of RNG supply (above the gas commodity charge) through Rider L for the elected RNG amount. The budget for this program will be determined by the forecast annual consumption multiplied by the elected RNG percentage on an individual basis applied to the weighted average RNG unit price.

   The cost of RNG not recovered through LCVP customers will be included with gas supply commodity purchases for recovery. The budget for this element will be determined by subtracting the LCVP budget amount from the total cost of RNG purchases for the year.

d) Please see response at Exhibit I.4.2-PP-46, Table 1, line 2 for the total RNG volumes at the maximum target percentages.

   The maximum bill impact for 2025 and 2029 (equal to 1% and 4% of planned gas supply commodity purchases, respectively) for sales service customers in all applicable Enbridge Gas rate classes is provided at Exhibit I.4.2-SEC-29.

Updated Response: /u

a) The updated evidence corrects the typo in the original evidence. The evidence now reads "Enbridge Gas proposes a maximum impact on the average residential of $2 per month per target percentage point of RNG. Accordingly, at a target percentage of 0.25 percent of RNG in the gas supply commodity portfolio in 2026 as forecast at the time of procurement, the maximum bill impact for an average residential customer would be 50 cents per month. At a target percentage of two percent of RNG in the gas supply portfolio in 2029, the maximum bill impact for an average residential customer would be $4 per month."

b) Please see response at Exhibit I.4.2-PP-46, Table 1, lines 3 and 4. The response provides an estimate of the cost of RNG supplies assuming a weighted average RNG unit rate of $15.98/GJ as well as $30.00/GJ.

c) Yes, Enbridge Gas will procure RNG for non-residential customers. As part of Enbridge Gas's proposal for the Lower-Carbon Voluntary Program (LCVP), the Company will procure RNG for non-residential general service and contract sales service customers. Additionally, Enbridge Gas proposes any amounts of RNG procured and not contracted for as part of the LCVP will be included with the cost of gas supply commodity purchases for both residential and non-residential sales service customers.

   Voluntary participants in the LCVP will be charged the associated premium of RNG supply (above the gas commodity charge) through Rider L for the elected RNG amount. The budget for this program will be determined by the forecast annual consumption multiplied by the elected RNG percentage on an individual basis applied to the weighted average RNG unit price.

   The cost of RNG not recovered through LCVP customers will be included with gas supply commodity purchases for recovery. The budget for this element will be determined by subtracting the LCVP budget amount from the total cost of RNG purchases for the year.

d) Please see response at Exhibit I.4.2-PP-46, Table 1, line 2 for the total RNG volumes at the maximum target percentages.

   The maximum bill impact for 2025 and 2029 (equal to 0.25% and 2% of planned gas supply commodity purchases, respectively) for sales service customers in all applicable Enbridge Gas rate classes is provided in the response at Exhibit I.4.2-SEC-29.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Energy Probe Research Foundation (EP)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, Page 3, Paragraph 10

Preamble:

Enbridge Gas is proposing approval of the low-carbon energy program and cost recovery proposal permanently, until such time that a change is requested and approved by the OEB.

Question(s):

Please explain what Enbridge means by the word “permanently” in the quoted paragraph.

Response:

Permanently refers to approval and commitment to continue the program by both Enbridge Gas and the OEB until a change to the program is requested by the Company and approved by the OEB.

As proposed, once the four percent target is reached in 2029, Enbridge Gas will continue to target low-carbon energy purchases of up to four percent of its portfolio until approval from the OEB is granted to procure amounts above four percent.

Any future changes to the program proposed by either Enbridge Gas or the OEB will need to consider the cost impacts of the long-term contract commitments made by the Company to enable the program in the form approved in this application.

Updated Response: /u

Permanently refers to approval and commitment to continue the program by both Enbridge Gas and the OEB until a change to the program is requested by the Company and approved by the OEB.

As proposed, once the two percent target is reached in 2029, Enbridge Gas will continue to target lower-carbon energy purchases of up to two percent of its portfolio until approval from the OEB is granted to procure amounts above two percent.

Any future changes to the program proposed by either Enbridge Gas or the OEB will need to consider the cost impacts of the long-term contract commitments made by the Company to enable the program in the form approved in this Application.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, Page 17, Paragraph 46

Preamble:

Enbridge indicates procurement of 1,000GJ of RNG in March 2022, 2,300 GJ of RNG in February 2023, and an additional 2,300 GJ of RNG in February 2024 through the voluntary RNG Pilot Program.

Question(s):

a) Are these values cumulative, so that the total procured for voluntary participation now totals 5,600 GJ?

b) What year(s) do these procurements of RNG for the voluntary program expire?

c) What is the cost per GJ for each of these procurements?

d) What percent of the planned gas commodity procurement for 2024 do these RNG procurements provide? Note: Paragraph 32 indicates total planned gas commodity procurement of 527 PJ.

e) If the proposed LCVP and RNG in the commodity portfolio as proposed are successful in meeting their 4% target, by 2029, how many total PJ of RNG will be provided in the Enbridge Gas Commodity portfolio?

f) By what factors (in percent terms) will the volumes of RNG procurement need to increase above the voluntary RNG pilot procurements listed above to meet the Low Carbon Voluntary (LCVP) targets of up to 1% in 2026 and 4% in 2029?

Response:

a) Yes. The cumulative amount of RNG procured for the VRNG Program as of February 2024 is 5,600 GJ.

b) The RNG procured to date has been in the spot market as one-time purchases without an associated term.

c) The average price paid on the spot market for all RNG procured is $35.92/GJ. The price paid for RNG on the spot market by Enbridge Gas is subject to the RNG market at the time of procurement. Spot market prices may not be representative of the price for RNG procured on long-term contracts. Please see response at Exhibit I.4.2-ED-40 for factors Enbridge Gas believes will impact the variance in price for RNG procured.

d) The 2024 year-to-date volume of RNG procured is 2,300 GJ and the 2024 planned gas supply commodity purchases are 527,350 TJ, as noted in Phase 2 Exhibit 4, Tab 2, Schedule 1, Attachment 1, page 3. The 2024 RNG procured as a percentage of the 2024 planned gas supply commodity purchases is therefore 0.00044% (2,300 GJ divided by 527,350,000 GJ).

e) Assuming planned gas supply commodity purchases of 527,350 TJ in 2029, 4% of the planned purchases is 21,094 TJ or 21.1 PJ.

f) RNG procurement would need to increase by 229,183% in 2026 above the 2024 year-to-date RNG procurement of 2,300 GJ to meet the 1% of planned gas supply commodity target for 2026. RNG procurement would need to increase by 917,030% above the 2024 procurement of 2,300 GJ to meet the 4% target for 2029. The percentage increases are extremely high due to the low volume of RNG purchased through the VRNG in 2024.

Updated Response: /u

e) The maximum target percentage is updated to 2% in 2029. Assuming planned gas supply commodity purchases of 527,350 TJ in 2029, 2% of the planned purchases is 10,547 TJ or 10.5 PJ.

f) RNG procurement would need to increase by 57,221% in 2026 above the 2024 year-to-date RNG procurement of 2,300 GJ to meet the 0.25% of planned gas supply commodity target for 2026. RNG procurement would need to increase by 458,465% above the 2024 procurement of 2,300 GJ to meet the 2% target for 2029. The percentage increases are extremely high due to the low volume of RNG purchased through the VRNG in 2024.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, Page 1, Paragraph 3

Preamble:

Enbridge states: "It is clear the energy transition is underway and RNG will play an important role. As outlined in Canada's Energy Future 2023 published by the Canada Energy Regulator (CER), low-carbon fuels will enable the energy system's path to net zero."

Question(s):

a) What level of RNG in PJ and as a share of supply is implied by the term "important role"?

b) How do the values in response to 4-GEC-17(e) (above) compare to the levels associated with an "important role"?

Response:

a-b) Enbridge Gas is unable to quantify the term "important role" in PJ or percentage of supply because the pathway of energy transition and the role that natural gas will play throughout the energy transition is not defined. Enbridge Gas notes that the proposed RNG purchases as part of the low-carbon energy program of up to four percent of the gas supply commodity portfolio, or 21.1 PJ of RNG, is forecast to have an estimated reduction of 1.06 Mt[1] of GHG emissions annually by 2029.

In the referenced report, Canada's Energy Future 2023,[2] the Canada Energy Regulator (CER) identifies blending RNG into fossil fuels to help reduce emissions in households and businesses that continue to use natural gas furnaces after the mid-

[1] The heating value of natural gas can impact the total estimated GHG emissions by +/-2.5%.
[2] Canada Energy Regulator. (2023) Canada's Energy Future 2023. https://www.cer-rec.gc.ca/en/data-analysis/canada-energy-future/2023/canada-energy-futures-2023.pdf

2030s. The report identifies the share of low or no-carbon energy sources, including RNG, to grow steadily towards 2050 in both the Global and Canada Net-zero scenarios. By 2050, the report identifies approximately 13% of the energy used in gas-fired and commercial spaces to be from RNG under their Global and Canada Net-zero scenarios.

Updated Response: /u

a-b) Enbridge Gas is unable to quantify the term "important role" in PJ or percentage of supply because the pathway of energy transition and the role that natural gas will play throughout the energy transition is not defined. Enbridge Gas notes that the proposed RNG purchases as part of the lower-carbon energy program of up to two percent of the gas supply commodity portfolio, or 10.5 PJ of RNG, is forecast to have an estimated reduction of 0.52 Mt[3] of GHG emissions annually by 2029.

In the referenced report, Canada's Energy Future 2023,[4] the Canada Energy Regulator (CER) identifies blending RNG into fossil fuels to help reduce emissions in households and businesses that continue to use natural gas furnaces after the mid-2030s. The report identifies the share of low or no-carbon energy sources, including RNG, to grow steadily towards 2050 in both the Global and Canada Net-zero scenarios. By 2050, the report identifies approximately 13% of the energy used in gas-fired and commercial spaces to be from RNG under their Global and Canada Net-zero scenarios.

[3] The heating value of natural gas can impact the total estimated GHG emissions by +/-2.5%.
[4] Canada Energy Regulator. (2023) Canada's Energy Future 2023. https://www.cer-rec.gc.ca/en/data-analysis/canada-energy-future/2023/canada-energy-futures-2023.pdf

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, Page 3, Paragraph 9

Question(s):

a) Please provide a workbook with values and formulas intact, that demonstrates the anticipated energy content and volumes of RNG and the procurement cost per PJ that is equivalent to reaching the 1%, 2%, 3%, and 4% targets within the maximum impact levels per residential customer of $2/month, $4/month, $6/month and $8/month.

b) Paragraph 33 on page 13 indicates the maximum bill impact estimates assume no LCVP participation. Please provide a workbook with formulas and values intact indicating the estimated average residential bill impact with LCVP participation rates based on the answer to question 4-GEC-19 (a) above.

Response:

a) Please see Attachment 1, in Excel format, for the energy content and volume of RNG at each target percentage as well as the calculation of the net RNG procurement cost of $25.58/GJ that is within both the maximum target percentage and average residential bill impact thresholds.

b) Enbridge Gas has not determined a demand forecast for the LCVP. Please see response at Exhibit I.4.2-SEC-32.

Updated Response: /u

a) Please see Attachment 1, in Excel format, for the energy content and volume of RNG at each updated target percentage as well as the calculation of the net RNG procurement cost of $25.58/GJ that is within both the maximum target percentage and average residential bill impact thresholds.

Target RNG Energy Content, Volumes and Net RNG Price Calculation

Line No.	Particulars	2026	2027	2028	2029
		(a)	(b)	(c)	(d)
	Target RNG Energy Content and Volumes				
1	Planned Gas Supply Commodity Portfolio (TJ) (1)	527,350	527,350	527,350	527,350
2	Target % of RNG	0.25%	0.75%	1.25%	2.00%
3	Target amount of RNG (TJ)	1,318	3,955	6,592	10,547
4	2024 heat value of natural gas (2)	39.09	39.09	39.09	39.09
5	Target amount of RNG (10^3m^3)	33,727	101,180	168,633	269,813
	Net RNG Price Within Target Bill Impact and Target Percentage				
6	Maximum residential impact per month ($/month)	0.50	1.50	2.50	4.00
7	Maximum residential impact per year ($/year) (line 6 x 12)	6	18	30	48
8	Average residential annual consumption (m^3/year) (3)	2,400	2,400	2,400	2,400
9	Unit rate impact ($/$m^3$) (line 7 / line 8)	0.0025	0.0075	0.0125	0.0200
10	Maximum target percentage	0.25%	0.75%	1.25%	2.00%
11	Net RNG price ($/$m^3$) (line 9 / line 10)	1.00	1.00	1.00	1.00
12	2024 heat value of natural gas (2)	39.09	39.09	39.09	39.09
13	Net RNG price ($/GJ) (line 11 / line 12 x 1000)	25.58	25.58	25.58	25.58

Notes:

(1) Phase 2 Exhibit 4, Tab 2, Schedule 1, Attachment 1, page 3, line 8.

(2) Enbridge South heat value of natural gas effective July 1, 2024. The heat value of natural gas can vary and will impact the net RNG price in $/GJ if different than the heat value used in the table.

(3) The average annual consumption is 2,400 m^3 and 2,200 m^3 for residential customers in the EGD rate zone and Union rate zones, respectively. Using the highest average consumption in the calculation of bill impact ensures that the average residential customers in all rates zones are not impacted above the maximum bill impact proposed.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, Page 15, Paragraph 41

Preamble:

The application states that Enbridge's low-carbon energy proposal would contribute roughly 6% of the provincial emissions reduction targets for 2030 (assuming 4% of the commodity gas portfolio is RNG).

Question(s):

a) Assuming the 4% of commodity gas portfolio is RNG, please estimate the emissions from the remaining fossil gas in 2030 (including combustion and non-combustion emissions).

b) What is the total emissions level required for Ontario to reduce emissions by 30% below 2005 levels by 2030?

c) What share of the total emissions (b) are associated with the projected remaining fossil gas system emissions (a)?

Response:

a) The estimated GHG emissions from the remaining portion of natural gas in Enbridge Gas's system in 2030 are 54.85 $MtCO_2e$. This estimate uses Enbridge Gas's total volume forecast for 2028, as it is the latest total throughput volume forecast date available[1], and assumes the RNG demand in 2030 as 21.1 PJ, as provided in the response at Exhibit I.4.2-PP-46, Table 1. It should be noted that subsequent forecasts, and actual natural gas demand in 2030 will be subject to change. Enbridge Gas has also assumed that all GHG emissions from natural gas are from

[1] Forecast general service volumes provided at EB-2022-0200, Exhibit.I.1.10-STAFF-31, Attachment 1, Table 1 and forecast distribution contract market sales & T-service volumes provided at EB-2022-0200, Exhibit I.1.10-STAFF-30, Attachment 1.

combustion as it has not estimated the portion of natural gas that may have been used in non-combustion processes (e.g., as a feedstock).

b) For Ontario to meet its 2030 emission reduction target of 30% below 2005 emission levels, the total amount of emissions produced in Ontario would be limited to 144.0 Mt CO_2e.[2]

c) Based on the estimate provided at part a), the emissions from the remaining portion of natural gas would be approximately 38.09% of the total emissions level required by Ontario to meet its 2030 emission reduction target.

Updated Response: /u

a) The maximum target percentage is updated to 2% in 2029. The estimated GHG emissions from the remaining portion of natural gas in Enbridge Gas's system in 2030 are 55.37 MtCO_2e. This estimate uses Enbridge Gas's total volume forecast for 2028, as it is the latest total throughput volume forecast date available[3], and assumes the RNG demand in 2030 as 10.5 PJ, as provided in response at Exhibit I.4.2-PP-46, Table 1. It should be noted that subsequent forecasts, and actual natural gas demand in 2030 will be subject to change. Enbridge Gas has also assumed that all GHG emissions from natural gas are from combustion as it has not estimated the portion of natural gas that may have been used in non-combustion processes (e.g., as a feedstock).

b) For Ontario to meet its 2030 emission reduction target of 30% below 2005 emission levels, the total amount of emissions produced in Ontario would be limited to 144.0 Mt CO_2e.[4]

c) Based on the estimate provided at part a), the emissions from the remaining portion of natural gas would be approximately 38.46% of the total emissions level required by Ontario to meet its 2030 emission reduction target.

[2] Government of Ontario. 2022. Ontario Emissions Scenario as of March 25, 2022. https://prod-environmental-registry.s3.amazonaws.com/2022-04/Ontario%20Emissions%20Scenario%20as%20of%20March%2025_1.pdf
[3] Forecast general service volumes provided at EB-2022-0200, Exhibit.I.1.10-STAFF-31, Attachment 1, Table 1 and forecast distribution contract market sales & T-service volumes provided at EB-2022-0200, Exhibit I.1.10-STAFF-30, Attachment 1.
[4] Government of Ontario. 2022. Ontario Emissions Scenario as of March 25, 2022. https://prod-environmental-registry.s3.amazonaws.com/2022-04/Ontario%20Emissions%20Scenario%20as%20of%20March%2025_1.pdf

ENBRIDGE GAS INC.

Answer to Interrogatory from
Pollution Probe (PP)

Interrogatory

Reference:

Reference: Enbridge Gas is proposing a low-carbon energy program to procure up to one percent of the planned gas supply commodity portfolio as low-carbon energy beginning January 1, 2026. Enbridge Gas proposes to increase low-carbon energy purchases by up to one percentage point each subsequent year to a maximum of up to four percent by 2029. [Phase 2 E4/T2/S7, Page 3].

Question(s):

What are the total estimated costs and total estimate lifecycle GHG emission reduction for each component of the proposed low carbon energy program.

Response:

As described at Exhibit I.4.2-SEC-30, Enbridge Gas will procure RNG within the thresholds of the maximum bill impact for the average residential customer and the target percentage of the gas supply commodity portfolio. A split between the percentage allocated to the Low-Carbon Voluntary Program (LCVP) and the gas supply commodity portfolio blend has not been identified. It will be based on the elections of the LCVP customers with unelected volumes being included in the gas supply commodity portfolio.

Table 1 provides the total estimated costs of RNG supplies and associated GHG emission reductions if the proposed target percentage of RNG is procured for each year of the low-carbon energy proposal. As the cost of RNG is not certain and based on many factors, the total estimated costs of RNG supplies have been calculated at an RNG price of $15.98/GJ and $30.00/GJ as described at Exhibit I.4.2-ED-40, part a).

Enbridge Gas does not calculate GHG emissions or GHG emission reductions on a lifecycle basis. The GHG emission reductions shown below are based on the end-use combustion of RNG. Please see response at Exhibit I.4.2-STAFF-36, part a) for detailed calculations of the GHG reductions from the procurement of RNG.

Table 1
Low-Carbon Energy Proposal Cost and GHG Emission Reduction

Line No.	Particulars	2026	2027	2028	2029
		(a)	(b)	(c)	(d)
1	Target % of RNG	1%	2%	3%	4%
2	Target amount of RNG (PJ) (1)	5.3	10.5	15.8	21.1
	Estimated cost of RNG supplies ($millions) (2)				
3	RNG price of $15.98/GJ	84.3	168.5	252.8	337.1
4	RNG price of $30/GJ	158.2	316.4	474.6	632.8
5	GHG Emission Reduction ($MtCO_2$)	0.26	0.52	0.78	1.04 (3)

Notes:

(1) % of planned gas supply commodity purchases in line 1 applied to the total 2024 gas supply purchase volumes of 527,350 TJ per Phase 2 Exhibit 4, Tab 2, Schedule 1, Attachment 1, p. 3. Gas supply purchase volumes for 2025 to 2029 are not available and not expected to change materially from 2024.

(2) Enbridge Gas has responded to this request with an average of $15.98/GJ and a high price of $30/GJ for RNG as provided at Exhibit I.4.2-ED-40.

(3) Calculation of 1.04 $MtCO_2$ reduction provided at Exhibit I.4.2-STAFF-36, part a).

Updated Response: /u

As described in the response at Exhibit I.4.2-SEC-30, Enbridge Gas will procure RNG within the thresholds of the maximum bill impact for the average residential customer and the target percentage of the gas supply commodity portfolio. A split between the percentage allocated to the Lower-Carbon Voluntary Program (LCVP) and the gas supply commodity portfolio blend has not been identified. It will be based on the elections of the LCVP customers with unelected volumes being included in the gas supply commodity portfolio.

Table 1 provides the total estimated costs of RNG supplies and associated GHG emission reductions if the proposed target percentage of RNG is procured for each year of the lower-carbon energy proposal. As the cost of RNG is not certain and based on many factors, the total estimated costs of RNG supplies have been calculated at an RNG price of $15.98/GJ and $30.00/GJ as described in response at Exhibit I.4.2-ED-40, part a).

Enbridge Gas does not calculate GHG emissions or GHG emission reductions on a lifecycle basis. The GHG emission reductions shown below are based on the end-use combustion of RNG. Please see response at Exhibit I.4.2-STAFF-36, part a) for detailed calculations of the GHG reductions from the procurement of RNG.

Table 1

Lower-Carbon Energy Proposal Cost and GHG Emission Reduction

Line No.	Particulars	2026	2027	2028	2029
		(a)	(b)	(c)	(d)
1	Target % of RNG	0.25%	0.75%	1.25%	2%
2	Target amount of RNG (PJ) (1)	1.3	4.0	6.6	10.5
	Estimated cost of RNG supplies ($millions) (2)				
3	RNG price of $15.98/GJ	21.0	63.2	105.3	168.5
4	RNG price of $30/GJ	39.6	118.6	197.8	316.4
5	GHG Emission Reduction ($MtCO_2$)	0.06	0.19	0.32	0.52 (3)

Notes:

(1) % of planned gas supply commodity purchases in line 1 applied to the total 2024 gas supply purchase volumes of 527,350 TJ per Phase 2 Exhibit 4, Tab 2, Schedule 1, Attachment 1, p. 3. Gas supply purchase volumes for 2025 to 2029 are not available and not expected to change materially from 2024.

(2) Enbridge Gas has responded to this request with an average of $15.98/GJ and a high price of $30/GJ for RNG as provided in the response at Exhibit I.4.2-ED-40.

(3) Calculation of 0.52 $MtCO_2$ reduction provided in the response at Exhibit I.4.2-STAFF-36, part a).

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[4-2-7, p.3]

Question(s):

Enbridge proposes a maximum impact of the LCVP on the average residential customer of $2 per month per target percentage of RNG as forecast the time procurement, to a maximum of $8 per target percentage of RNG procurement in 2029. Please provide similar customer impacts for other customer types, rate classes, and on an m3 basis.

Response:

Please see response at Exhibit I.4.2-ED-42, part a) for a correction to the sentence in evidence that is referenced in the question.

Please see Attachment 1 for the maximum bill impact to sales service customers in all applicable Enbridge Gas rate classes based on the maximum impact on the average residential customer of $2 per month for RNG purchases up to 1% of planned gas supply commodity purchases. Enbridge Gas used the maximum unit rate impact of 1.0000 cents/m^3 to calculate the maximum bill impact for non-residential general service and contract sales service customers. Please see response at Exhibit I.4.2-STAFF-33, Table 1, lines 1 to 4, column (a) for a calculation of the maximum unit rate impact of 1.0000 cents/m^3.

Please see Attachment 2 for the maximum bill impact to sales service customers in all applicable Enbridge Gas rate classes based on the maximum impact on the average residential customer of $8 per month for RNG purchases up to 4% of planned gas supply commodity purchases. Enbridge Gas used the maximum unit rate impact of 4.0000 cents/m^3 to calculate the maximum bill impact for non-residential general service and contract sales service customers. Please see response at Exhibit I.4.2-STAFF-33, Table 1, lines 1 to 4, column (d) for a calculation of the maximum unit rate impact of 4.0000 cents/m^3.

Updated Response: /u

Please see response at Exhibit I.4.2-ED-42, part a) for a correction to the sentence in evidence that is referenced in the question.

Please see Attachment 1 for the maximum bill impact to sales service customers in all applicable Enbridge Gas rate classes based on the maximum impact on the average residential customer of 50 cents per month for RNG purchases up to 0.25% of planned gas supply commodity purchases. Enbridge Gas used the maximum unit rate impact of 0.2500 cents/m^3 to calculate the maximum bill impact for non-residential general service and contract sales service customers. Please see response at Exhibit I.4.2-STAFF-33, Table 1, lines 1 to 4, column (a) for a calculation of the maximum unit rate impact of 0.2500 cents/m^3.

Please see Attachment 2 for the maximum bill impact to sales service customers in all applicable Enbridge Gas rate classes based on the maximum impact on the average residential customer of $4 per month for RNG purchases up to 2% of planned gas supply commodity purchases. Enbridge Gas used the maximum unit rate impact of 2.0000 cents/m^3 to calculate the maximum bill impact for non-residential general service and contract sales service customers. Please see response at Exhibit I.4.2-STAFF-33, Table 1, lines 1 to 4, column (d) for a calculation of the maximum unit rate impact of 2.0000 cents/m^3.

Low-Carbon Energy Program Maximum Sales Service Bill Impact
RNG Purchases of 0.25% of Planned Gas Supply Commodity Portfolio

Line No.		Annual Volume (1) (m^3)	Unit Rate (cents/m^3)	Maximum Bill Impact $	
		(a)	(b)	(c) = (a x b) / 100	
	EGD Rate Zone				
1	Small Rate 1	2,400	0.2500	6	/u
2	Large Rate 1	5,048	0.2500	13	/u
3	Small Rate 6	5,048	0.2500	13	/u
4	Average Rate 6	22,606	0.2500	57	/u
5	Large Rate 6	339,124	0.2500	848	/u
6	Small Rate 100	339,188	0.2500	848	/u
7	Average Rate 100	598,567	0.2500	1,496	/u
8	Large Rate 100	1,500,000	0.2500	3,750	/u
9	Small Rate 110	598,568	0.2500	1,496	/u
10	Average Rate 110	9,976,120	0.2500	24,940	/u
11	Large Rate 110	9,976,121	0.2500	24,940	/u
12	Small Rate 115	4,471,609	0.2500	11,179	/u
13	Large Rate 115	69,832,850	0.2500	174,582	/u
14	Average Rate 135	598,567	0.2500	1,496	/u
15	Small Rate 145	339,188	0.2500	848	/u
16	Large Rate 145	598,567	0.2500	1,496	/u
17	Small Rate 170	9,976,120	0.2500	24,940	/u
18	Average Rate 170	9,976,121	0.2500	24,940	/u
19	Large Rate 170	69,832,850	0.2500	174,582	/u
20	Average Rate 200	145,305,600	0.2500	363,264	/u
	Union North Rate Zone				
21	Small Rate 01	2,200	0.2500	6	/u
22	Large Rate 01	40,000	0.2500	100	/u
23	Small Rate 10	60,000	0.2500	150	/u
24	Average Rate 10	93,000	0.2500	233	/u
25	Large Rate 10	250,000	0.2500	625	/u
26	Small Rate 20	3,000,000	0.2500	7,500	/u
27	Large Rate 20	15,000,000	0.2500	37,500	/u
28	Average Rate 25	2,275,000	0.2500	5,688	/u
	Union South Rate Zone				
29	Small Rate M1	2,200	0.2500	6	/u
30	Large Rate M1	40,000	0.2500	100	/u
31	Small Rate M2	60,000	0.2500	150	/u
32	Average Rate M2	73,000	0.2500	183	/u
32	Large Rate M2	250,000	0.2500	625	/u
33	Small Rate M4	875,000	0.2500	2,188	/u
34	Large Rate M4	12,000,000	0.2500	30,000	/u
35	Small Rate M5 Interruptible	825,000	0.2500	2,063	/u
36	Large Rate M5 Interruptible	6,500,000	0.2500	16,250	/u
37	Small Rate M7	36,000,000	0.2500	90,000	/u
38	Large Rate M7	52,000,000	0.2500	130,000	/u
39	Small Rate M9	6,950,000	0.2500	17,375	/u
40	Large Rate M9	20,178,000	0.2500	50,445	/u

Notes:

(1) Typical customer annual consumption by rate class consistent with the bill impacts presented at EB-2022-0200, Exhibit 8, Tab 2, Schedule 8, Attachment 10, excluding rate classes that do not have a sales service supply option.

Low-Carbon Energy Program Maximum Sales Service Bill Impact
RNG Purchases of 2% of Planned Gas Supply Commodity Portfolio

Line No.		Annual Volume (1) (m^3)	Unit Rate (cents/m^3)	Maximum Bill Impact $	
		(a)	(b)	(c) = (a x b) / 100	
	EGD Rate Zone				
1	Small Rate 1	2,400	2.0000	48	/u
2	Large Rate 1	5,048	2.0000	101	/u
3	Small Rate 6	5,048	2.0000	101	/u
4	Average Rate 6	22,606	2.0000	452	/u
5	Large Rate 6	339,124	2.0000	6,782	/u
6	Small Rate 100	339,188	2.0000	6,784	/u
7	Average Rate 100	598,567	2.0000	11,971	/u
8	Large Rate 100	1,500,000	2.0000	30,000	/u
9	Small Rate 110	598,568	2.0000	11,971	/u
10	Average Rate 110	9,976,120	2.0000	199,522	/u
11	Large Rate 110	9,976,121	2.0000	199,522	/u
12	Small Rate 115	4,471,609	2.0000	89,432	/u
13	Large Rate 115	69,832,850	2.0000	1,396,657	/u
14	Average Rate 135	598,567	2.0000	11,971	/u
15	Small Rate 145	339,188	2.0000	6,784	/u
16	Large Rate 145	598,567	2.0000	11,971	/u
17	Small Rate 170	9,976,120	2.0000	199,522	/u
18	Average Rate 170	9,976,121	2.0000	199,522	/u
19	Large Rate 170	69,832,850	2.0000	1,396,657	/u
20	Average Rate 200	145,305,600	2.0000	2,906,112	/u
	Union North Rate Zone				
21	Small Rate 01	2,200	2.0000	44	/u
22	Large Rate 01	40,000	2.0000	800	/u
23	Small Rate 10	60,000	2.0000	1,200	/u
24	Average Rate 10	93,000	2.0000	1,860	/u
25	Large Rate 10	250,000	2.0000	5,000	/u
26	Small Rate 20	3,000,000	2.0000	60,000	/u
27	Large Rate 20	15,000,000	2.0000	300,000	/u
28	Average Rate 25	2,275,000	2.0000	45,500	/u
	Union South Rate Zone				
29	Small Rate M1	2,200	2.0000	44	/u
30	Large Rate M1	40,000	2.0000	800	/u
31	Small Rate M2	60,000	2.0000	1,200	/u
32	Average Rate M2	73,000	2.0000	1,460	/u
32	Large Rate M2	250,000	2.0000	5,000	/u
33	Small Rate M4	875,000	2.0000	17,500	/u
34	Large Rate M4	12,000,000	2.0000	240,000	/u
35	Small Rate M5 Interruptible	825,000	2.0000	16,500	/u
36	Large Rate M5 Interruptible	6,500,000	2.0000	130,000	/u
37	Small Rate M7	36,000,000	2.0000	720,000	/u
38	Large Rate M7	52,000,000	2.0000	1,040,000	/u
39	Small Rate M9	6,950,000	2.0000	139,000	/u
40	Large Rate M9	20,178,000	2.0000	403,560	/u

Notes:

(1) Typical customer annual consumption by rate class consistent with the bill impacts presented at EB-2022-0200, Exhibit 8, Tab 2, Schedule 8, Attachment 10, excluding rate classes that do not have a sales service supply option.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Three Fires Group Inc. (Three Fires) / Minogi Corp. (Minogi)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, p. 8

Preamble:

EGI notes that increasing the amount of RNG in gas supply (1) supports an immediate opportunity to reduce GHG emissions within Ontario's building, transportation, industrial and electricity generation sectors; and (2) develops an Ontario-based RNG market to supply RNG to the difficult-to-decarbonize sectors such as industrial processes and heavy

Question(s):

a) Please elaborate on and discuss how the LCVP will help to develop an Ontario-based RNG market and whether this includes supporting the production of RNG in Ontario or only refers to developing the market for the demand of RNG. In your response, please discuss how an "Ontario-based RNG market" relates to the broader interconnected North-American RNG market.

b) What is the basis of EGI's belief that the LCVP will support an Ontario-based RNG market?

Response:

a) Enbridge Gas expects the LCVP will support both production of RNG supply and demand for RNG.

   The RNG market is not unlike the conventional natural gas market where RNG supply can be sourced from across North America and delivered to Ontario. Natural gas utilities outside of Ontario such as Energir in Quebec and FortisBC in British Columbia source Ontario RNG for their customers. RNG can be transported using the existing natural gas pipeline or a book and claim system. Please see response at Exhibit I.4.2-ED-49, part b) and c).

Approval of the Enbridge Gas low-carbon energy proposal would create demand of up to 21.1 PJ of RNG by 2029. This demand for RNG by Enbridge Gas in Ontario would support the development of RNG projects that may not otherwise be developed. Please see response at Exhibit I.4.2-ED-49, part e) for the benefits of developing RNG projects in Ontario.

b) Enbridge Gas expects the LCVP will support an Ontario-based RNG market through an understanding of the potential demand from large volume customers and available supply from Ontario RNG producers. Large volume customers continue to express interest in low-carbon energy options. Please see response at Exhibit I.4.2-SEC-32. In addition, letters of support from Ontario RNG producers are found at Phase 2 Exhibit 4, Tab 2, Schedule 7, Attachment 3. On page 5 one Ontario producer indicates that the Enbridge Gas proposal "amplifies the market potential of our RNG production". On page 17 another producer states that "Enbridge's ability to purchase RNG is an essential condition to the development of a strong RNG market in Ontario". On page 19, a producer states that approval of the Enbridge Gas proposal will allow the growth of their "Ontario Operations and provide local low carbon economy jobs".

Updated Response: /u

a) Enbridge Gas expects the LCVP will support both production of RNG supply and demand for RNG.

   The RNG market is not unlike the conventional natural gas market where RNG supply can be sourced from across North America and delivered to Ontario. Natural gas utilities outside of Ontario such as Energir in Quebec and FortisBC in British Columbia source Ontario RNG for their customers. RNG can be transported using the existing natural gas pipeline or a book and claim system. Please see response at Exhibit I.4.2-ED-49, part b) and c).

   Approval of the Enbridge Gas lower-carbon energy proposal would create demand of up to 10.5 PJ of RNG by 2029. This demand for RNG by Enbridge Gas in Ontario would support the development of RNG projects that may not otherwise be developed. Please see response at Exhibit I.4.2-ED-49, part e) for the benefits of developing RNG projects in Ontario.